THE BROOKLYN INSTITUTE OF ARTS AND SCIENCES.

The Museum News

Central Museum, Eastern Parkway
Children's Museum, Bedford Park

VOL. 4 BROOKLYN, N. Y., FEBRUARY, 1909. NO. 5

THE PAST YEAR.

The year that has just closed has been one of the most important in the history of the Central and Children's Museums, both in the matter of attendance and in work accomplished. The attendance at the Central Museum was 203,940, an increase of 35,255 over 1907, and at the Children's Museum 117,182, a gain of 19,377 over that for 1907, and a combined total of 321,122. So far as attendance goes, these figures represent high water mark in the history of the Museums. Mere gain in attendance, however, gratifying though it may be, is by no means the greatest gain during the year, for notable additions have been made to every department of the Museum as noted from time to time in the News.

Above all great progress has been made in the arrangement of the collections and as a museum is a place, above all others, where law and order should reign, this may be considered as the greatest gain of the year. Such an advance in arrangement has been the removal of the porcelains from the west square gallery and their installation in the east wing; the removal of the invertebrate collections from the west to the east hall; the transferrence of the herbarium from the second floor to the basement and its installation in smaller, better and more accessible cases.

Another long step forward is the construction of offices in the basement of the east wing and the removal of the library to new and commodious quarters where it is accessible not only to the staff but to the public. All this and many similar improvements in arranging the collections and making them available for the public are the natural outcome of the growth of the Museum and not the result of any special effort during 1908.

During the first period of the existence of a museum whose material is accumulating faster than quarters can be provided for it, there is of necessity more or less confusion. With sufficient room and a sufficient staff, it becomes possible to bring order out of the confusion.

This Museum is now in the beginning of the second stage, but a large amount of work must be done in classifying and cataloguing specimens before the collections can be said to be in order. This calls for an increased force to do the work, but more pressing needs are cases for the display of specimens still in storage, book stacks for the library, and storage cases for birds, insects, and botanical specimens.

GAMES OF THE CLIFF DWELLERS.

The remains of the implements used in their games serve to connect the culture of the Cliff Dwellers with that of existing tribes.

Chance games are chiefly represented by stick dice, two-faced lots, and small flat wood, cane and bone dice, the last identical with those discovered in ruins at various places in the Southwest. An unique set of painted wooden billets in the Museum collection were probably used in a hiding game. No precisely similar gaming implements exist in use, but from their form and the marks on these sticks, it is probable they were concealed under a basket and their position with reference to each other guessed at.

The principal athletic game of the Cliff Dwellers, judging from the numerous kicking billets found in the ruins, is likely to have been the kicked-billet race. The billets are sometimes painted, but usually plain, and distinguished by notches and longitudinal marks. No buckskin balls are found, but hooped-shaped billets and sticks for tossing them, such as were discovered in great number at the Pueblo Bonito, occur. They are so nearly like the implements used in the widely distributed game of "double ball," that it seems probable that they were used in the same way. Netted rings, corncob feather darts, and corn husk shuttlecocks are also discovered in the ruins, but whether they were used in games, or in ceremonies akin to them, cannot be decided with our present knowledge.

SCRIMSHAW WORK.

The words Scrimshaw and Scrimshawing are probably unknown to most, perhaps all, of the readers of the News and yet they are, or were, used by thousands of English-speaking people and are very properly defined in the Century Dictionary. The variant scrimshander occurs in some books on whaling published about 1850.

Scrimshawing, broadly speaking, is a sailor's term for carving, engraving or inlaying; in a more restricted sense it is engraving on wood, or bone or ivory. The material most frequently used was the ivory of the sperm whale, whose teeth in the palmy days of the whale fishery were easily obtainable, of convenient size to be handled and sufficiently soft

to be readily worked. The teeth were filed and scraped smooth, the design drawn and then the lines scratched in with knife, or usually the sharp point of a sail needle. Ships and female figures often with the addition of a trophy of flags were favorite designs. This work was almost entirely confined to whaleships when it was prosecuted during leisure hours, on Sundays and the morning watch below. Now-a-days the sailor rarely has any leisure hours and his commandment reads:

Six days shall you labor
And do all that you are able,
And the seventh scrape the anchor
And pound the iron rust off the cable.

With the decline of the whale fishery the art of "scrimshawing" has practically come to an end and specimens are no longer to be seen in every saloon and boarding house along the water front.

Many of them have found their way into museums and our own has recently received a number of examples through the courtesy of Col. Woodward. These not only give a good idea of scrimshaw work, but to one who can read between the lines convey considerable information. For example, one of the oldest and simplest pieces bears rather an indifferent figure of a man-of-war marked "Essex" and in addition two figures in uniform. The Essex was the ill-fated frigate built at Salem in 1799, and in 1814 captured by the English at Valparaiso. She was then commanded by David G. Porter, father of Commodore Porter, and among her midshipmen was David G. Farragut, Admiral to be. That this was actually drawn for the Essex is the more probable from the fact that the figures show a pennant at the main and the forked flag of a commodore at the fore, details that no man-of-warsman would omit any more than he would put the union jack on a man-of-war under sail. This picture must have been made not far from 1812, possibly by some whaleman in the Pacific where the Essex went to capture the British whalers near the Galapagos Islands, whither they resorted to get the great tortoises with which these islands then abounded. Another elaborately engraved tooth has as part of its decoration a steamer, which from its character and rig can be no other than the Kearsarge which sank the Confederate cruiser Alabama, and many years after was wrecked on a reef in the Caribbean Sea. The term engraved, applied to this tooth seems to be correct, for it differs in technique (as an art critic would say) from the scratches made by a sail needle. Two teeth depicting on one side a brig and on the other a lighthouse, the one in moderate weather, the other in a gale, may have been drawn with Minot's Ledge light in mind, or they may be purely works of the imagination.

A single tooth bears two female portraits, treated as miniatures, and still another two figures typifying Hope and Abundance, and these are of interest as showing whence the sailor man went for his costumes. Those familiar with scrimshawing and tattooing and also unfortunately old enough to remember Peterson's and Harper's Magazines of fifty years ago, know that it was from these journals, particularly the back pages of Harper's, that the sailor drew the details of his costumes and will recognize their influence in the dress of these figures. It would probably be possible for an expert on dress to give the approximate date at which these teeth were graven.

A detail in the drawing of the anchor on which the somewhat melancholy Hope is leaning suggests that it must have been drawn rather early in the 19th century. The arms of the anchor are drawn straight and curved arms were only introduced about 1807, having been devised by Mr. Pering to lessen the breakages caused by the employment of a straight arm. Still this detail may have been an accident due to ease in drawing, though in another Hope the anchor is drawn with curved flukes. This last figure is one of two forming the reverse of two teeth showing a frigate under full sail and running before a gale. These two are examples of the very finest scrimshaw work and were probably made between 1850 and 1860, before sailing frigates were replaced by steamers. The schooners and brigs on the sides of the teeth appear to have been taken from R. H. Dana's "Seaman's Friend," a book published in 1841, and still in vogue in the 60's.

MENANDER.

A recent addition to the casts from the Antique, of the Art Department, is the seated Menander of the Vatican. It is a gift from the Hon. Elijah R. Kennedy. The marble original is an authentic portrait of the Greek dramatist, who died in 291 B. C., at the age of fifty-two. Although the exact date of execution and the original location are unknown, the statue is recognized as an original work of Greek Art, not far removed in date from the lifetime of the dramatist. The statue appears to have been discovered in or near Rome and to have stood for several centuries during the Middle Ages in the church of S. Lorenzo in Panisperna on the Viminal Hill. It was removed by Pope Sextus V (1585-1590) to his Villa Montalto, now Grazioli, and was acquired by Pope Pius VI (1775-1800), for the Vatican. The restorations are unimportant, concerning only the left hand with the scroll, the end of the nose, and part of the right foot. The statue is widely known as one of the most interesting and important works of Greek portrait sculpture. These are far from

being numerous and those which are now extant are confined to the Alexandrian, or Hellenistic, period.

ON RECENT OBSERVATIONS OF THE WIDENING REFINEMENT IN AMIENS CATHEDRAL.*

Under the term widening refinement is understood a hitherto unnoticed, but widespread system of mediæval church and cathedral construction in which the vertical lines of the nave diverge in the upward direction. The announcement of such a system of intentional construction has been met by the denial of its existence on the part of many distinguished experts, especially in France. Such experts presume the facts to exist, but attribute them to accident, and more especially and exactly to accidents caused by the thrust of the nave vaulting.

The proofs of an intentional construction are, however, many and serious. They are presumed by Mr. Goodyear to be conclusive, and have been so recognized by the architect in charge of repairs in Rheims Cathedral, by the master-mason of the same repairs, by the architect in charge of the repairs of Amiens Cathedral, and by many distinguished experts in construction, among whom may be mentioned Prof. A. D. F. Hamlin, of the Columbia University Architectural School.

The monuments examined, and supposed to offer these conclusive proofs, include a large number in Italy, a large number in Northern France and other churches in Constantinople. The demonstrations from these buildings are universally and without exception submitted in the form of enlarged photographs which are, or will be, exhibited in the Museum of the Brooklyn Institute of Arts and Sciences. These photographs are presumed not only to illustrate the facts of widening, which they undoubtedly do, but they are also presumed to offer such a choice of facts as to negative the theory of accident.

The widening refinement includes many cases of widening in straight lines and these cases are more easily shown to be constructive than those in which the widening occurs in vertical curves.

The demonstration of the present Paper does not debate the vertical curves. It is confined to the cases of widening in straight lines.

There are two phases of widening in straight lines, piers which incline outwards from the pavement up, and piers which are perpendicular to the capitals; with vaulting-shafts which diverge in straight lines, beginning at the capitals.

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*Synopsis of paper read by Wm. H. Goodyear at the Toronto meeting of the Archæological Institute of America, December 29, 1908.

To the former class belong, among other churches,
Saint Alpin at Chalons,
Saint Loup at Chalons,
Saint Ouen at Rouen and
The Cathedral of Rouen.

To the latter class belong, among other churches,
The Cathedral of Rheims,
The Cathedral of Amiens,
The Cathedral of Laon, and
Saint Remi at Rheims.

If the widening refinement were due to thrust, in the case of churches with piers which lean out from the pavement up or with shafts which lean out directly above the capitals the lines would bend or curve above the counter thrust and weight of the side aisles. Since resistance to the nave thrust decreases in the upward direction, accidental widening in straight lines against the weight and counter thrust of the side aisles is not to be assumed as likely or possible even in a single instance. The possibility of a subsidence of the exterior lower walls of the churches appears to be the only one which even in theory could explain an accidental widening of the kind described and observed.

If such subsidence had taken place at Rheims or at Amiens it would be known to the experts in charge of repairs.

Constructive stability is not endangered by the system discussed. At Amiens the lean outward is less than one-seventh of the diameter of the pier, and at Rheims the piers are far heavier than at Amiens, whereas the maximum inclination is the same.

It seems probable that the counteraction of an optical narrowing in, or spindling effect, due to perspective convergence, may have been one purpose of the widening refinement. But it seems also probable that this refinement is the expression of a positive artistic preference, based on experience and on good taste, for a diverging effect in the vertical supports of an arch.

The preference, or liking, on the part of Arab builders, for the horse-shoe form in arches, may be a related fact and there is an undeniable relation to the effect of the horse-shoe arch in this construction, but without that inward bend at the base which, to some, is a disagreeable feature.

The widening refinement dates to the 6th century at Constantinople and it disappears with the overthrow of the Gothic style by the Renaissance, in the 16th century. This overthrow was so complete that even the existence of the refinement has been forgotten.

MIMICRY: PROTECTIVE COLORATION.

Those who had the pleasure of hearing Professor Poulton's recent lectures may be glad to know that many of the examples of mimicry or protective coloration mentioned by him are on exhibition at the Museum. Those who may wish to pursue the subject farther will find the following books in the library:

Beddard, F. E.,
Animal Coloration. 1892.
Also contains a chapter on Protective Mimicry.

Folsom, J. W.,
Entomology with Reference to its Biological and Economic Aspects. 1906.
Contains chapters on Mimicry and Protective Coloration and bibliography of the subject.

Kolbe, H. J.,
Einführung in die Kenntnis der Insekten. 1893.

Morgan, T. H.,
Evolution and Adaptation. 1903.

Nutting, C. C.,
Color of Deep-Sea Animals. Pamphlet.

Poulton, E. B.,
Colors of Animals; their Meaning and Use, Especially Considered in the Case of Insects. 1890.
Contains a chapter on Protective Mimicry.
Accounts of a number of Prof. Poulton's experiments are contained in the Transactions of the London Entomological Society.
Essays on Evolution, 1889-1907. 1908.

Schaeffer, Carl,
How Insects are Protected.
(See MUSEUM NEWS, May, 1906, pp. 141-143.)

Thayer, A. H.,
The Law which Underlies Protective Coloration. (See Smithsonian Institution. Annual report, 1897, pp. 477-482.)

Thayer, G. H.,
Concealing Coloration of Animals. (See *Century Magazine,* June, 1908.)

Wallace, A. R.,
Warning Coloration and Mimicry. (See his Darwinism.)

LIBRARY NOTES.

The Library is frequently called upon for books on insects as carriers of disease. This demand it is well equipped to supply, having made a special effort to collect books and other publications on the subject, following the Museum exhibition work along this line. Four reports on Plague Investigations in India, just received, are a valuable contribution to this subject.

A work that has proved most useful for reference is the Portrait Index, which is an index to portraits contained in books and periodicals. The volume was made possible by the co-operative labor, covering nine years, of several institutions, edited by and at the expense of the American Library Association and published by the Library of Congress.

A full set of the publications of the Carnegie Institution will be found on the shelves of the Library. This apropos of a question that has been asked two or three times by 'phone of late.

Among recent accessions are Bond's "Screens and Galleries in English Churches," British Museum "Catalogue of the Lizards," v. 3, Budge's "Easy Lessons in Egyptian Hieroglyphics, with Sign List," Winckelmann's "History of Art," 2 v., and the Index to the Bulletin of the Nuttall Ornithological Club and to its continuation the "Auk," 1876-1900.

We note that a movement is on foot for an informal round-table meeting of Museum librarians at the next American Library Association annual conference to be held early in the summer. This should be productive of good results, not the least of which will be the acquaintance with one another.

The Curator of Books paid short visits to the State Library at Albany and the Hart Memorial Library at Troy, N. Y., early in January.

The following extract (translation) from the will of Edmond de Concourt shows one collector's point of view as to the disposition of his collections: "My wish is that my Drawings, my Prints, my Curiosities, my Books—in a word these things of art which have been the joy of my life—shall not be consigned to the cold tomb of a museum, and subjected to the stupid glance of the careless passer-by; but I require that they shall all be dispersed under the hammer of the auctioneer, so that the pleasure which the acquiring of each one of them has given me shall be given again, in each case, to some inheritor of my own tastes."

Had Monsieur de Goncourt lived at the present day, he might have found museums not "cold tombs," but very much alive in their appeal to the dilettanti as well as the masses.

The Children's Museum.

Bedford Park.

We give below the third list of charts to be lent to schools. These lists have been published in separate form and sets of leaflets will be mailed to those who apply for them.

The charts here described have only very recently been mounted and catalogued. Each chart can be rolled for transportation.

Charts may be kept one month.

MAMMALS.

PRIMATES.

Apes and Monkeys
Chimpanzee.

HOOFED MAMMALS.

Cape Buffalo
Elephant
Cow
Donkey
Giraffe
Red Deer
Reindeer
African Rhinoceros
Hippopotamus
Pig
Goat
Sheep.

GNAWING MAMMALS.

Hare
Squirrel.

MISCELLANEOUS.

Kangaroo
Duck Billed Platypus
Flying Fox
Vampire Bat.

BIRDS.

PERCHING BIRDS.

Kingfisher.

BIRDS OF PREY.

Golden Eagle
Owl.

WADING BIRDS.

Flamingo
Stork
Heron.

MISCELLANEOUS.

British Swimming Birds
Mallard Duck
Peacock
Domestic Fowl
Parrots
Pigeon
Raven.

FISH.

Familiar Round Fish
Familiar Flat Fish
Shark.

AMPHIBIA.

Frogs.

REPTILES.

Tortoise or Green Frog.

CRUSTACEA.

Crab and Lobster.

INSECTS.

Beetles.

BOTANY.

Grafting
The Pear twigs
Apple and Pear (pruning)
The Apple
Strawberry
Raspberry
Gooseberry
The Apple (pruning).

GEOGRAPHY.

The Tower of London
City of Edinburgh, 1897
Venice
Pyramids of Gizeh
Windsor Castle.

HISTORIC CHARACTERS.

William Shakespeare
Sir Walter Raleigh
Sir Walter Scott
Duke of Wellington
Queen Victoria.

RACES OF MEN.

Patagonians
Chinese
North American Indians
The Hindu
The Australian Aborigines
A group of Africans.

THE SEASONS.

Spring
Summer
Autumn
Winter.

HUMAN PHYSIOLOGY.

Organs of Digestion and Circulation.

FAMILIAR SCENES.

A Life Boat
Steamships
Sailing Ship
Balloons
A Snow Scene
A Water Wheel
A Farm Yard
A Fishing Village
A Street Scene
Harvesting
The Wind Mill
Haymaking
A Railroad Station
The Fire Engine
The Post Office
The Seaside.

NOTES.

The City History Club held its first meeting in the Club Room of this building, on January 4th, 1909. Twenty-four boys and girls registered for membership—nine of which were members of the club last year. Mr. Harold C. Green, the instructor in this work, gave a most interesting talk on the "Indian Villages of Manhattan Island," followed by a lesson on the topography of Greater New York, which included the study, by the children, of small maps distributed. Each child was given an outline map of Greater New York to color and fill in for the second meeting.

At a second meeting held on January 11th, members brought in drawings of their own make, showing plans of the city blocks in which they live. These drawings are to be inserted in the club note books, which, through the reports of lessons, pictures, records of original research and study of individual students, will represent the work done by the club. The officers elected at this meeting were:

President—Frank Buck.
Vice President—Nellie Doyle.
Secretary—Alma Kuske.
Treasurer—Eric Paulson.

"The Standard Union" of our city will publish regularly, in its column of future events, the lectures to be given at the Children's Museum. This item may be of interest to teachers and others wishing for information about lectures when they are not able to obtain a copy of our lecture schedule.

The Mothers' Club of the Kindergarten in Public School No. 59, with Miss Annie L. Eaton, the head kindergartner, visited our Museum on January 19th, for the first time. After listening to an illustrated talk on "The Nesting Habits of Birds," the mothers made a careful study of the Museum collections and the Library.

We are glad to note that previous meetings of this character have been followed by repeated visits from the mothers with their children and husbands.

SPECIAL LECTURE, GEORGE WASHINGTON.

Miss Lee will give a special lecture on George Washington on Washington's Birthday, Monday, February 22nd, at 10:00 and 11:00 A. M. and 2:00 and 3:00 P. M.

ADDITIONS TO INSECT COLLECTION.

We have again received a fine lot of insects from our young friend, Austin M. Curtis, whose interest in this line of study has been mentioned in previous numbers of the MUSEUM NEWS. The material in hand represents, chiefly, butterflies, moths and wasps, all collected in Porto Rico, for on recent voyages, Austin could not land in Venezuela, where he has been so successful before, on account of quarantine restrictions.

A large series of the so-called "Bella Moth" is of especial interest as showing a remarkable color variation among the individuals, no two of which are alike. This moth is widely distributed, ranging from Canada southward into Central and South America and the West Indies. Though subject to great individual variation wherever it occurs, several distinct geographical races are recognized. An exhibit placed in the insect room well illustrates the subject.

Among the wasps are some of the large, handsome insects, known as "tarantula killers." These formidable creatures, Austin relates, were quite abundant, and the utmost care had to be exercised in capturing them.

Upon examination, all proved to be males, and therefore devoid of a sting. In mentioning this we do not, in any way, mean to reflect on Austin's ability as an entomologist, but on the contrary, wish to call attention to the protection afforded the harmless males in their close resemblance to the stinging females.

Many defenseless moths and flies resemble stinging wasps, thus furnishing some of the most striking examples of that phenomenon called "mimicry."

A group containing the nest of a bumble-bee (*Bombus fervidus*) has been added to the exhibit dealing with homes of social insects. The nest contains a large number of cells and is shown in an underground chamber partly filled with soft grasses and moss, collected by a family of mice which formerly dwelt there, such situations being the favorite abodes of these insects.

Bumble-bees do not occupy the same nest more than one season, for on the approach of winter all the members of a community die excepting a few fertilized females, which hibernate, each one starting a new colony in the spring.

A temporary installation of the birth stones presented to this Museum by Mr. Julius Wodiska has enabled our visitors to enjoy these beautiful gems while they are waiting for the materials necessary to display them advantageously. Each birth stone is occupied by a label with the verse about that stone. The gem case is one of the cases to which children often return and where they linger in evident delight over the beauty of color and scintillations, and in thorough enjoyment of the verses which they read, copy and compare. The proportionate amount of sapolio and soapsuds expended upon the surrounding paint and glass proves the attractiveness of Mr. Wodiska's gift.

SPECIAL LECTURE, ABRAHAM LINCOLN.

A special lecture on Abraham Lincoln will be given by Miss Gallup on Friday, February 12th. The lecture will begin at 10:30 A. M., will be repeated at 2:30 P. M. and illustrated with colored lantern slides. This being the 100th anniversary of the birth of Abraham Lincoln, officers and other members of the City History Club will assist on that day.

We are very grateful to Mr. W. T. Bather for an artist proof from an engraving of Benjamin Franklin, made by Mr. Bather from a portrait painting of Franklin now in the Pennsylvania Academy of Fine Arts, Philadelphia. This portrait was painted from life in 1778 by Joseph Silfrede Duplessis, a French painter of high rank, and was exhibited in the Paris Salon in 1779. It is one of the most familiar types of Franklin's portraits from having been frequently engraved, and is known as the "fur collar portrait."

Owing to the rapidly increasing demand for admission to lectures on Washington and Lincoln, teachers with classes will find it more agreeable and convenient to attend the morning lectures, when there is more room in the Museum and in the lecture room, than in the afternoon.

Thirty-two school principals, heads of department and teachers met at our Museum on Monday, January 18th, at four o'clock. A short explanation of the equipment and methods of work with children was given and the loan material for schools was exhibited and explained. The remaining time was devoted to a study of the museum collections and the books in the library. Several of the teachers who have been in the habit of bringing classes to the Museum told of the help that it had been to them.

LIBRARY NOTES.

The number of readers in the Children's Museum Library is steadily increasing, and the year 1908 was a "record" year in the Library. The total number for the year recently closed showed a gain of 7,593 over the previous year, each month in turn having a considerable increase over the corresponding month in 1907. According to our minutes, April and November, 1908, have been the two largest months thus far, the "record" day being February 22nd, 1908, when a total of 870 readers was noted.

Several new picture bulletins were prepared during the month of January, one subject, "Childhood," being illustrated for the first time. In one group, entitled "The Childhood of Some Famous People," were included among others, youthful pictures of Sir Isaac Newton, William Shakespeare, and John Milton. In another series of bulletins typical "Winter" scenes were displayed with appropriate quotations.

In connection with the work of the "City History Club" a bulletin was arranged containing many interesting scenes in old New York and Brooklyn, together with a selected reading list.

Some anniversaries occurring in January were noted by other simple bulletins; these included the centennial of the birth of Edgar Allan Poe, and the anniversary of the birth of Benjamin Franklin, whose bicentenary was observed three years ago.

Among the books for older students recently added to the Library may be mentioned one which was eagerly welcomed by botanists throughout the country, namely, "Gray's New Manual of Botany." This seventh edition of the standard manual has been rearranged and extensively revised by Drs. B. L. Robinson and M. L. Fernald of Harvard University.

Another helpful book entitled "Biology and its Makers" by William A. Locy, as its title suggests, is designed to make "readers acquainted with those men of noble purpose whose work has created the epochs of biological history."

An interesting treatment of the subject "Autumnal Leaves" is found in a volume by F. G. Heath, attractively illustrated by twelve colored plates.

A quaint little volume by Jacob Abbott, published in 1855, is entitled "How the Story Books are Made." In connection with the woodcuts of "Franklin's Press" the author states that "to get a full and complete idea of the progress of the last half-century, we must compare Franklin's press with one of the great power presses, by means of which almost all the prodigious printing operations of the present time are performed."

LECTURE SCHEDULE
AT THE CHILDREN'S MUSEUM.

Grades 7A and 7B: Tuesdays at 4:00 P. M.

Mechanics of Liquids.

February 2 How and Why Liquids Transmit Pressure.
February 9 The Equilibrium of Liquids.
February 16 How and Why Bodies Float.
February 23 Pumps and Siphons. **Miss Lee**

Grades 5A and 5B: Wednesdays at 4:00 P. M.

Geography of Italy.

February 3 Sicily as It Was.
February 10 Naples and Vesuvius.
February 17 Cities in Northern Italy.
February 24 Cities in Central Italy. **Miss Lee**

Grades 8A and 8B: Thursdays at 4:00 P. M.

Electricity
(Continued).

February 4 The Telegraph.
February 11 Electric Bells.
February 18 Electromagnetic Induction.
February 25 How Induction Coils are Made and Used. **Miss Lee**

Grades 6A and 6B: Fridays at 4:00 P. M.

Astronomy
(Continued).

February 5 The Planets.
February 12 Holiday—(lecture by Miss Gallup).
February 19 Fixed Stars: What They Are.
February 26 Legends About Stars. **Miss Lee**

Special Lecture 10:30 A.M.
February 12 Abraham Lincoln. **Miss Gallup**

Primary Grades: Saturdays at 10:30 A. M.

The Human Body.

February 6 How and Why We Breathe.
February 13 The Blood and Its Circulation.
February 20 The Eye.
February 27 The Ear. **Miss Lee**

Primary Grades: Saturdays at 2.30 P. M.

Animals That Carry Burdens.

February 6 Camel.
February 13 Llama.
February 20 Horse.
February 27 Donkey. **Miss Gallup**

February 22 Special Lecture (Washington's Birthday).
10:00 and 11:00 A. M., and 2:00 and 3:00 P. M.
George Washington. **Miss Lee**

THE LECTURES ARE FREE TO THE PUBLIC.

Special lectures may be arranged for.—Apply to MISS ANNA B. GALLUP.

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GAMES OF THE CLIFF DWELLERS.

The remains of the implements used in their games serve to connect the culture of the Cliff Dwellers with that of existing tribes.

Chance games are chiefly represented by stick dice, two-faced lots, and small flat wood, cane and bone dice, the last identical with those discovered in ruins at various places in the Southwest. An unique set of painted wooden billets in the Museum collection were probably used in a hiding game. No precisely similar gaming implements exist in use, but from their form and the marks on these sticks, it is probable they were concealed under a basket and their position with reference to each other guessed at.

The principal athletic game of the Cliff Dwellers, judging from the numerous kicking billets found in the ruins, is likely to have been the kicked-billet race. The billets are sometimes painted, but usually plain, and distinguished by notches and longitudinal marks. No buckskin balls are found, but hooped-shaped billets and sticks for tossing them, such as were discovered in great number at the Pueblo Bonito, occur. They are so nearly like the implements used in the widely distributed game of "double ball," that it seems probable that they were used in the same way. Netted rings, corncob feather darts, and corn husk shuttlecocks are also discovered in the ruins, but whether they were used in games, or in ceremonies akin to them, cannot be decided with our present knowledge.

SCRIMSHAW WORK.

The words Scrimshaw and Scrimshawing are probably unknown to most, perhaps all, of the readers of the News and yet they are, or were, used by thousands of English-speaking people and are very properly defined in the Century Dictionary. The variant scrimshander occurs in some books on whaling published about 1850.

Scrimshawing, broadly speaking, is a sailor's term for carving, engraving or inlaying; in a more restricted sense it is engraving on wood, or bone or ivory. The material most frequently used was the ivory of the sperm whale, whose teeth in the palmy days of the whale fishery were easily obtainable, of convenient size to be handled and sufficiently soft

to be readily worked. The teeth were filed and scraped smooth, the design drawn and then the lines scratched in with knife, or usually the sharp point of a sail needle. Ships and female figures often with the addition of a trophy of flags were favorite designs. This work was almost entirely confined to whaleships when it was prosecuted during leisure hours, on Sundays and the morning watch below. Now-a-days the sailor rarely has any leisure hours and his commandment reads:

Six days shall you labor
And do all that you are able,
And the seventh scrape the anchor
And pound the iron rust off the cable.

With the decline of the whale fishery the art of "scrimshawing" has practically come to an end and specimens are no longer to be seen in every saloon and boarding house along the water front.

Many of them have found their way into museums and our own has recently received a number of examples through the courtesy of Col. Woodward. These not only give a good idea of scrimshaw work, but to one who can read between the lines convey considerable information. For example, one of the oldest and simplest pieces bears rather an indifferent figure of a man-of-war marked "Essex" and in addition two figures in uniform. The Essex was the ill-fated frigate built at Salem in 1799, and in 1814 captured by the English at Valparaiso. She was then commanded by David G. Porter, father of Commodore Porter, and among her midshipmen was David G. Farragut, Admiral to be. That this was actually drawn for the Essex is the more probable from the fact that the figures show a pennant at the main and the forked flag of a commodore at the fore, details that no man-of-warsman would omit any more than he would put the union jack on a man-of-war under sail. This picture must have been made not far from 1812, possibly by some whaleman in the Pacific where the Essex went to capture the British whalers near the Galapagos Islands, whither they resorted to get the great tortoises with which these islands then abounded. Another elaborately engraved tooth has as part of its decoration a steamer, which from its character and rig can be no other than the Kearsarge which sank the Confederate cruiser Alabama, and many years after was wrecked on a reef in the Caribbean Sea. The term engraved, applied to this tooth seems to be correct, for it differs in technique (as an art critic would say) from the scratches made by a sail needle. Two teeth depicting on one side a brig and on the other a lighthouse, the one in moderate weather, the other in a gale, may have been drawn with Minot's Ledge light in mind, or they may be purely works of the imagination.

A single tooth bears two female portraits, treated as miniatures, and still another two figures typifying Hope and Abundance, and these are of interest as showing whence the sailor man went for his costumes. Those familiar with scrimshawing and tattooing and also unfortunately old enough to remember Peterson's and Harper's Magazines of fifty years ago, know that it was from these journals, particularly the back pages of Harper's, that the sailor drew the details of his costumes and will recognize their influence in the dress of these figures. It would probably be possible for an expert on dress to give the approximate date at which these teeth were graven.

A detail in the drawing of the anchor on which the somewhat melancholy Hope is leaning suggests that it must have been drawn rather early in the 19th century. The arms of the anchor are drawn straight and curved arms were only introduced about 1807, having been devised by Mr. Pering to lessen the breakages caused by the employment of a straight arm. Still this detail may have been an accident due to ease in drawing, though in another Hope the anchor is drawn with curved flukes. This last figure is one of two forming the reverse of two teeth showing a frigate under full sail and running before a gale. These two are examples of the very finest scrimshaw work and were probably made between 1850 and 1860, before sailing frigates were replaced by steamers. The schooners and brigs on the sides of the teeth appear to have been taken from R. H. Dana's "Seaman's Friend," a book published in 1841, and still in vogue in the 60's.

MENANDER.

A recent addition to the casts from the Antique, of the Art Department, is the seated Menander of the Vatican. It is a gift from the Hon. Elijah R. Kennedy. The marble original is an authentic portrait of the Greek dramatist, who died in 291 B. C., at the age of fifty-two. Although the exact date of execution and the original location are unknown, the statue is recognized as an original work of Greek Art, not far removed in date from the lifetime of the dramatist. The statue appears to have been discovered in or near Rome and to have stood for several centuries during the Middle Ages in the church of S. Lorenzo in Panisperna on the Viminal Hill. It was removed by Pope Sextus V (1585-1590) to his Villa Montalto, now Grazioli, and was acquired by Pope Pius VI (1775-1800), for the Vatican. The restorations are unimportant, concerning only the left hand with the scroll, the end of the nose, and part of the right foot. The statue is widely known as one of the most interesting and important works of Greek portrait sculpture. These are far from

being numerous and those which are now extant are confined to the Alexandrian, or Hellenistic, period.

ON RECENT OBSERVATIONS OF THE WIDENING REFINEMENT IN AMIENS CATHEDRAL.*

Under the term widening refinement is understood a hitherto unnoticed, but widespread system of mediæval church and cathedral construction in which the vertical lines of the nave diverge in the upward direction. The announcement of such a system of intentional construction has been met by the denial of its existence on the part of many distinguished experts, especially in France. Such experts presume the facts to exist, but attribute them to accident, and more especially and exactly to accidents caused by the thrust of the nave vaulting.

The proofs of an intentional construction are, however, many and serious. They are presumed by Mr. Goodyear to be conclusive, and have been so recognized by the architect in charge of repairs in Rheims Cathedral, by the master-mason of the same repairs, by the architect in charge of the repairs of Amiens Cathedral, and by many distinguished experts in construction, among whom may be mentioned Prof. A. D. F. Hamlin, of the Columbia University Architectural School.

The monuments examined, and supposed to offer these conclusive proofs, include a large number in Italy, a large number in Northern France and other churches in Constantinople. The demonstrations from these buildings are universally and without exception submitted in the form of enlarged photographs which are, or will be, exhibited in the Museum of the Brooklyn Institute of Arts and Sciences. These photographs are presumed not only to illustrate the facts of widening, which they undoubtedly do, but they are also presumed to offer such a choice of facts as to negative the theory of accident.

The widening refinement includes many cases of widening in straight lines and these cases are more easily shown to be constructive than those in which the widening occurs in vertical curves.

The demonstration of the present Paper does not debate the vertical curves. It is confined to the cases of widening in straight lines.

There are two phases of widening in straight lines, piers which incline outwards from the pavement up, and piers which are perpendicular to the capitals; with vaulting-shafts which diverge in straight lines, beginning at the capitals.

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*Synopsis of paper read by Wm. H. Goodyear at the Toronto meeting of the Archæological Institute of America, December 29, 1908.

To the former class belong, among other churches,
Saint Alpin at Chalons,
Saint Loup at Chalons,
Saint Ouen at Rouen and
The Cathedral of Rouen.

To the latter class belong, among other churches,
The Cathedral of Rheims,
The Cathedral of Amiens,
The Cathedral of Laon, and
Saint Remi at Rheims.

If the widening refinement were due to thrust, in the case of churches with piers which lean out from the pavement up or with shafts which lean out directly above the capitals the lines would bend or curve above the counter thrust and weight of the side aisles. Since resistance to the nave thrust decreases in the upward direction, accidental widening in straight lines against the weight and counter thrust of the side aisles is not to be assumed as likely or possible even in a single instance. The possibility of a subsidence of the exterior lower walls of the churches appears to be the only one which even in theory could explain an accidental widening of the kind described and observed.

If such subsidence had taken place at Rheims or at Amiens it would be known to the experts in charge of repairs.

Constructive stability is not endangered by the system discussed. At Amiens the lean outward is less than one-seventh of the diameter of the pier, and at Rheims the piers are far heavier than at Amiens, whereas the maximum inclination is the same.

It seems probable that the counteraction of an optical narrowing in, or spindling effect, due to perspective convergence, may have been one purpose of the widening refinement. But it seems also probable that this refinement is the expression of a positive artistic preference, based on experience and on good taste, for a diverging effect in the vertical supports of an arch.

The preference, or liking, on the part of Arab builders, for the horse-shoe form in arches, may be a related fact and there is an undeniable relation to the effect of the horse-shoe arch in this construction, but without that inward bend at the base which, to some, is a disagreeable feature.

The widening refinement dates to the 6th century at Constantinople and it disappears with the overthrow of the Gothic style by the Renaissance, in the 16th century. This overthrow was so complete that even the existence of the refinement has been forgotten.

MIMICRY: PROTECTIVE COLORATION.

Those who had the pleasure of hearing Professor Poulton's recent lectures may be glad to know that many of the examples of mimicry or protective coloration mentioned by him are on exhibition at the Museum. Those who may wish to pursue the subject farther will find the following books in the library:

Beddard, F. E.,
Animal Coloration. 1892.
Also contains a chapter on Protective Mimicry.

Folsom, J. W.,
Entomology with Reference to its Biological and Economic Aspects. 1906.
Contains chapters on Mimicry and Protective Coloration and bibliography of the subject.

Kolbe, H. J.,
Einführung in die Kenntnis der Insekten. 1893.

Morgan, T. H.,
Evolution and Adaptation. 1903.

Nutting, C. C.,
Color of Deep-Sea Animals. Pamphlet.

Poulton, E. B.,
Colors of Animals; their Meaning and Use, Especially Considered in the Case of Insects. 1890.
Contains a chapter on Protective Mimicry.
Accounts of a number of Prof. Poulton's experiments are contained in the Transactions of the London Entomological Society.
Essays on Evolution, 1889-1907. 1908.

Schaeffer, Carl,
How Insects are Protected.
(See MUSEUM NEWS, May, 1906, pp. 141-143.)

Thayer, A. H.,
The Law which Underlies Protective Coloration. (See Smithsonian Institution. Annual report, 1897, pp. 477-482.)

Thayer, G. H.,
Concealing Coloration of Animals. (See *Century Magazine,* June, 1908.)

Wallace, A. R.,
Warning Coloration and Mimicry. (See his Darwinism.)

LIBRARY NOTES.

The Library is frequently called upon for books on insects as carriers of disease. This demand it is well equipped to supply, having made a special effort to collect books and other publications on the subject, following the Museum exhibition work along this line. Four reports on Plague Investigations in India, just received, are a valuable contribution to this subject.

A work that has proved most useful for reference is the Portrait Index, which is an index to portraits contained in books and periodicals. The volume was made possible by the co-operative labor, covering nine years, of several institutions, edited by and at the expense of the American Library Association and published by the Library of Congress.

A full set of the publications of the Carnegie Institution will be found on the shelves of the Library. This apropos of a question that has been asked two or three times by 'phone of late.

Among recent accessions are Bond's "Screens and Galleries in English Churches," British Museum "Catalogue of the Lizards," v. 3, Budge's "Easy Lessons in Egyptian Hieroglyphics, with Sign List," Winckelmann's "History of Art," 2 v., and the Index to the Bulletin of the Nuttall Ornithological Club and to its continuation the "Auk," 1876-1900.

We note that a movement is on foot for an informal round-table meeting of Museum librarians at the next American Library Association annual conference to be held early in the summer. This should be productive of good results, not the least of which will be the acquaintance with one another.

The Curator of Books paid short visits to the State Library at Albany and the Hart Memorial Library at Troy, N. Y., early in January.

The following extract (translation) from the will of Edmond de Goncourt shows one collector's point of view as to the disposition of his collections: "My wish is that my Drawings, my Prints, my Curiosities, my Books—in a word these things of art which have been the joy of my life—shall not be consigned to the cold tomb of a museum, and subjected to the stupid glance of the careless passer-by; but I require that they shall all be dispersed under the hammer of the auctioneer, so that the pleasure which the acquiring of each one of them has given me shall be given again, in each case, to some inheritor of my own tastes."

Had Monsieur de Goncourt lived at the present day, he might have found museums not "cold tombs," but very much alive in their appeal to the dilettanti as well as the masses.

The Children's Museum.

Bedford Park.

We give below the third list of charts to be lent to schools. These lists have been published in separate form and sets of leaflets will be mailed to those who apply for them.

The charts here described have only very recently been mounted and catalogued. Each chart can be rolled for transportation.

Charts may be kept one month.

MAMMALS.

PRIMATES.

Apes and Monkeys
Chimpanzee.

HOOFED MAMMALS.

Cape Buffalo
Elephant
Cow
Donkey
Giraffe
Red Deer
Reindeer
African Rhinoceros
Hippopotamus
Pig
Goat
Sheep.

GNAWING MAMMALS.

Hare
Squirrel.

MISCELLANEOUS.

Kangaroo
Duck Billed Platypus
Flying Fox
Vampire Bat.

BIRDS.

PERCHING BIRDS.

Kingfisher.

BIRDS OF PREY.

Golden Eagle
Owl.

WADING BIRDS.

Flamingo
Stork
Heron.

MISCELLANEOUS.

British Swimming Birds
Mallard Duck
Peacock
Domestic Fowl
Parrots
Pigeon
Raven.

FISH.

Familiar Round Fish
Familiar Flat Fish
Shark.

AMPHIBIA.

Frogs.

REPTILES.

Tortoise or Green Frog.

CRUSTACEA.

Crab and Lobster.

INSECTS.

Beetles.

BOTANY.

Grafting
The Pear twigs
Apple and Pear (pruning)
The Apple
Strawberry
Raspberry
Gooseberry
The Apple (pruning).

GEOGRAPHY.

The Tower of London
City of Edinburgh, 1897
Venice
Pyramids of Gizeh
Windsor Castle.

HISTORIC CHARACTERS.

William Shakespeare
Sir Walter Raleigh
Sir Walter Scott
Duke of Wellington
Queen Victoria.

RACES OF MEN.

Patagonians
Chinese
North American Indians
The Hindu
The Australian Aborigines
A group of Africans.

THE SEASONS.

Spring
Summer
Autumn
Winter.

HUMAN PHYSIOLOGY.

Organs of Digestion and Circulation.

FAMILIAR SCENES.

A Life Boat
Steamships
Sailing Ship
Balloons
A Snow Scene
A Water Wheel
A Farm Yard
A Fishing Village
A Street Scene
Harvesting
The Wind Mill
Haymaking
A Railroad Station
The Fire Engine
The Post Office
The Seaside.

NOTES.

The City History Club held its first meeting in the Club Room of this building, on January 4th, 1909. Twenty-four boys and girls registered for membership—nine of which were members of the club last year. Mr. Harold C. Green, the instructor in this work, gave a most interesting talk on the "Indian Villages of Manhattan Island," followed by a lesson on the topography of Greater New York, which included the study, by the children, of small maps distributed. Each child was given an outline map of Greater New York to color and fill in for the second meeting.

At a second meeting held on January 11th, members brought in drawings of their own make, showing plans of the city blocks in which they live. These drawings are to be inserted in the club note books, which, through the reports of lessons, pictures, records of original research and study of individual students, will represent the work done by the club. The officers elected at this meeting were:

President—Frank Buck.
Vice President—Nellie Doyle.
Secretary—Alma Kuske.
Treasurer—Eric Paulson.

"The Standard Union" of our city will publish regularly, in its column of future events, the lectures to be given at the Children's Museum. This item may be of interest to teachers and others wishing for information about lectures when they are not able to obtain a copy of our lecture schedule.

The Mothers' Club of the Kindergarten in Public School No. 59, with Miss Annie L. Eaton, the head kindergartner, visited our Museum on January 19th, for the first time. After listening to an illustrated talk on "The Nesting Habits of Birds," the mothers made a careful study of the Museum collections and the Library.

We are glad to note that previous meetings of this character have been followed by repeated visits from the mothers with their children and husbands.

SPECIAL LECTURE, GEORGE WASHINGTON.

Miss Lee will give a special lecture on George Washington on Washington's Birthday, Monday, February 22nd, at 10:00 and 11:00 A. M. and 2:00 and 3:00 P. M.

ADDITIONS TO INSECT COLLECTION.

We have again received a fine lot of insects from our young friend, Austin M. Curtis, whose interest in this line of study has been mentioned in previous numbers of the MUSEUM NEWS. The material in hand represents, chiefly, butterflies, moths and wasps, all collected in Porto Rico, for on recent voyages, Austin could not land in Venezuela, where he has been so successful before, on account of quarantine restrictions.

A large series of the so-called "Bella Moth" is of especial interest as showing a remarkable color variation among the individuals, no two of which are alike. This moth is widely distributed, ranging from Canada southward into Central and South America and the West Indies. Though subject to great individual variation wherever it occurs, several distinct geographical races are recognized. An exhibit placed in the insect room well illustrates the subject.

Among the wasps are some of the large, handsome insects, known as "tarantula killers." These formidable creatures, Austin relates, were quite abundant, and the utmost care had to be exercised in capturing them.

Upon examination, all proved to be males, and therefore devoid of a sting. In mentioning this we do not, in any way, mean to reflect on Austin's ability as an entomologist, but on the contrary, wish to call attention to the protection afforded the harmless males in their close resemblance to the stinging females.

Many defenseless moths and flies resemble stinging wasps, thus furnishing some of the most striking examples of that phenomenon called "mimicry."

A group containing the nest of a bumble-bee (*Bombus fervidus*) has been added to the exhibit dealing with homes of social insects. The nest contains a large number of cells and is shown in an underground chamber partly filled with soft grasses and moss, collected by a family of mice which formerly dwelt there, such situations being the favorite abodes of these insects.

Bumble-bees do not occupy the same nest more than one season, for on the approach of winter all the members of a community die excepting a few fertilized females, which hibernate, each one starting a new colony in the spring.

A temporary installation of the birth stones presented to this Museum by Mr. Julius Wodiska has enabled our visitors to enjoy these beautiful gems while they are waiting for the materials necessary to display them advantageously. Each birth stone is occupied by a label with the verse about that stone. The gem case is one of the cases to which children often return and where they linger in evident delight over the beauty of color and scintillations, and in thorough enjoyment of the verses which they read, copy and compare. The proportionate amount of sapolio and soapsuds expended upon the surrounding paint and glass proves the attractiveness of Mr. Wodiska's gift.

SPECIAL LECTURE, ABRAHAM LINCOLN.

A special lecture on Abraham Lincoln will be given by Miss Gallup on Friday, February 12th. The lecture will begin at 10:30 A. M., will be repeated at 2:30 P. M. and illustrated with colored lantern slides. This being the 100th anniversary of the birth of Abraham Lincoln, officers and other members of the City History Club will assist on that day.

We are very grateful to Mr. W. T. Bather for an artist proof from an engraving of Benjamin Franklin, made by Mr. Bather from a portrait painting of Franklin now in the Pennsylvania Academy of Fine Arts, Philadelphia. This portrait was painted from life in 1778 by Joseph Silfrede Duplessis, a French painter of high rank, and was exhibited in the Paris Salon in 1779. It is one of the most familiar types of Franklin's portraits from having been frequently engraved, and is known as the "fur collar portrait."

Owing to the rapidly increasing demand for admission to lectures on Washington and Lincoln, teachers with classes will find it more agreeable and convenient to attend the morning lectures, when there is more room in the Museum and in the lecture room, than in the afternoon.

Thirty-two school principals, heads of department and teachers met at our Museum on Monday, January 18th, at four o'clock. A short explanation of the equipment and methods of work with children was given and the loan material for schools was exhibited and explained. The remaining time was devoted to a study of the museum collections and the books in the library. Several of the teachers who have been in the habit of bringing classes to the Museum told of the help that it had been to them.

LIBRARY NOTES.

The number of readers in the Children's Museum Library is steadily increasing, and the year 1908 was a "record" year in the Library. The total number for the year recently closed showed a gain of 7,593 over the previous year, each month in turn having a considerable increase over the corresponding month in 1907. According to our minutes, April and November, 1908, have been the two largest months thus far, the "record" day being February 22nd, 1908, when a total of 870 readers was noted.

Several new picture bulletins were prepared during the month of January, one subject, "Childhood," being illustrated for the first time. In one group, entitled "The Childhood of Some Famous People," were included among others, youthful pictures of Sir Isaac Newton, William Shakespeare, and John Milton. In another series of bulletins typical "Winter" scenes were displayed with appropriate quotations.

In connection with the work of the "City History Club" a bulletin was arranged containing many interesting scenes in old New York and Brooklyn, together with a selected reading list.

Some anniversaries occurring in January were noted by other simple bulletins; these included the centennial of the birth of Edgar Allan Poe, and the anniversary of the birth of Benjamin Franklin, whose bicentenary was observed three years ago.

Among the books for older students recently added to the Library may be mentioned one which was eagerly welcomed by botanists throughout the country, namely, "Gray's New Manual of Botany." This seventh edition of the standard manual has been rearranged and extensively revised by Drs. B. L. Robinson and M. L. Fernald of Harvard University.

Another helpful book entitled "Biology and its Makers" by William A. Locy, as its title suggests, is designed to make "readers acquainted with those men of noble purpose whose work has created the epochs of biological history."

An interesting treatment of the subject "Autumnal Leaves" is found in a volume by F. G. Heath, attractively illustrated by twelve colored plates.

A quaint little volume by Jacob Abbott, published in 1855, is entitled "How the Story Books are Made." In connection with the woodcuts of "Franklin's Press" the author states that "to get a full and complete idea of the progress of the last half-century, we must compare Franklin's press with one of the great power presses, by means of which almost all the prodigious printing operations of the present time are performed."

LECTURE SCHEDULE
AT THE CHILDREN'S MUSEUM.

Grades 7A and 7B: Tuesdays at 4:00 P. M.

Mechanics of Liquids.

February 2 How and Why Liquids Transmit Pressure.
February 9 The Equilibrium of Liquids.
February 16 How and Why Bodies Float.
February 23 Pumps and Siphons. **Miss Lee**

Grades 5A and 5B: Wednesdays at 4:00 P. M.

Geography of Italy.

February 3 Sicily as It Was.
February 10 Naples and Vesuvius.
February 17 Cities in Northern Italy.
February 24 Cities in Central Italy. **Miss Lee**

Grades 8A and 8B: Thursdays at 4:00 P. M.

Electricity
(Continued).

February 4 The Telegraph.
February 11 Electric Bells.
February 18 Electromagnetic Induction.
February 25 How Induction Coils are Made and Used. **Miss Lee**

Grades 6A and 6B: Fridays at 4:00 P. M.

Astronomy
(Continued).

February 5 The Planets.
February 12 Holiday—(lecture by Miss Gallup).
February 19 Fixed Stars: What They Are.
February 26 Legends About Stars. **Miss Lee**

Special Lecture 10:30 A.M.

February 12 Abraham Lincoln. **Miss Gallup**

Primary Grades: Saturdays at 10:30 A. M.

The Human Body.

February 6 How and Why We Breathe.
February 13 The Blood and Its Circulation.
February 20 The Eye.
February 27 The Ear. **Miss Lee**

Primary Grades: Saturdays at 2.30 P. M.

Animals That Carry Burdens.

February 6 Camel.
February 13 Llama.
February 20 Horse.
February 27 Donkey. **Miss Gallup**
February 22 Special Lecture (Washington's Birthday).
10:00 and 11:00 A. M., and 2:00 and 3:00 P. M.
George Washington. **Miss Lee**

THE LECTURES ARE FREE TO THE PUBLIC.

Special lectures may be arranged for.—Apply to Miss ANNA B. GALLUP.